National Weather Service (NWS) Service Description Document (SDD)

Proposed national expansion of Partial County Alerting for NOAA Weather Radio All Hazards (NWR) and the Emergency Alert System (EAS)

Part I - Mission Connection

a. Service Description

The NWS disseminates weather warnings and Non-Weather Emergency Messages (NWEMs) via NWR and NWR serves as a primary source of information for the nation's EAS.

Both NWR and EAS are generally viewed as county-based systems. However, this is particularly problematic for very large or uniquely-shaped counties because even if only a small portion of a county is included in a polygon-defined warning, the warning's NWR and EAS dissemination translates to the entire county. Note that NWS' use of the word "county" includes parishes, independent cities, boroughs, census areas and other county equivalents as designated by the Bureau of the Census.

Both NWR and EAS allow a county to be divided into fixed partitions, with the number of partitions ranging from two to nine. Each partition is associated with a unique, six digit location code. To combat the issue of warning entire county areas when, in fact, only a portion of the county is affected, five Weather Forecast Offices (WFOs; Duluth, Glasgow, Las Vegas, Rapid City and Tucson) successfully assigned partial county codes to one or more of their counties. We refer to this more-targeted dissemination of polygon-based warnings via NWR and EAS as Partial County Alerting (PCA). Until now, the PCA service capability was executed by these WFOs using local applications.

NWR listeners with Specific Area Message Encoding (SAME)-equipped receivers can easily program their radios with a 6-digit location code to receive alerts for the specific part of the county of interest to them.

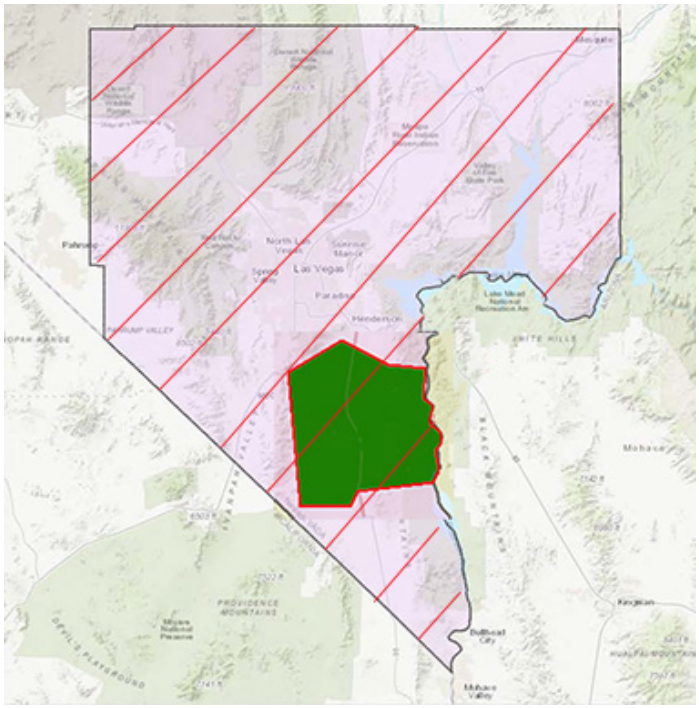
The NWS's proposed national expansion of PCA includes the following enhancements:

- Expanding the capability to other WFOs and other select counties.
- Introducing consistent service delivery for NWR users by implementing PCA on each NWR transmitter broadcasting warnings via SAME to a partitioned county.
- Providing consistent aural messages via NWR and consistent aural and text messages via EAS in terms of the directional descriptions associated with the affected county partition(s) associated with a warning.

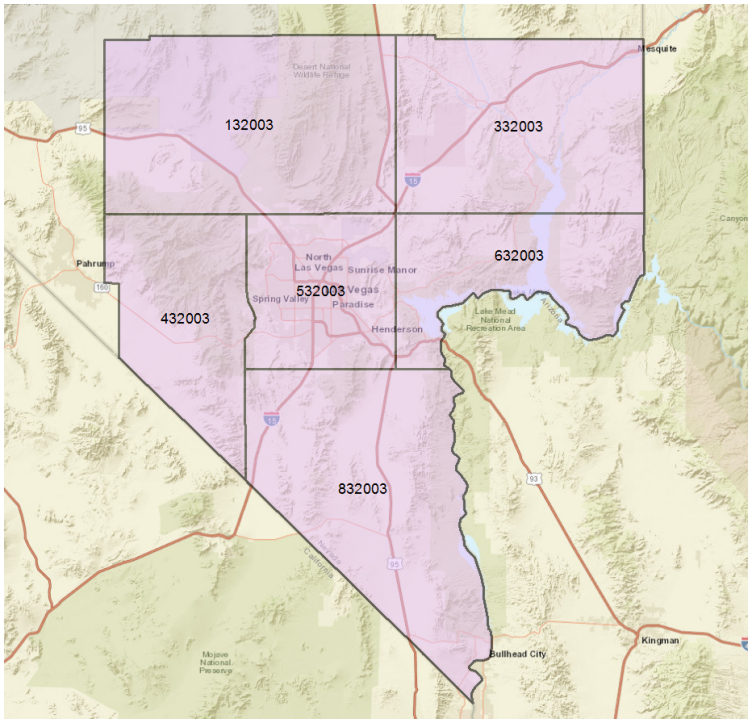
- Supporting emergency managers and civil alerting authorities by expanding PCA to include NWEMs such as the Civil Emergency Message (CEM) and Evacuation Immediate (EVI) messages.
- Documenting PCA in World Meteorological Organization (WMO)-formatted products for weather warnings and NWEMs using a Partition Tag Line located below the double ampersand (&&) symbol.
- Documenting PCA in NWS Common Alerting Protocol version 1.2 (CAP v1.2) messages for weather warnings (Note: The NWS does not disseminate CAP messages for NWEM).
- Documenting NWS' use of PCA in a new AWIPS shapefile PCA database.
- Providing the NWR user community with county-specific information on use of PCA in the online national NWR county pages and the NWS' telephone line at 1-888-NWR-SAME (1-888-697-7263).

A graphical depiction of PCA implementation for Clark County, Nevada follows.

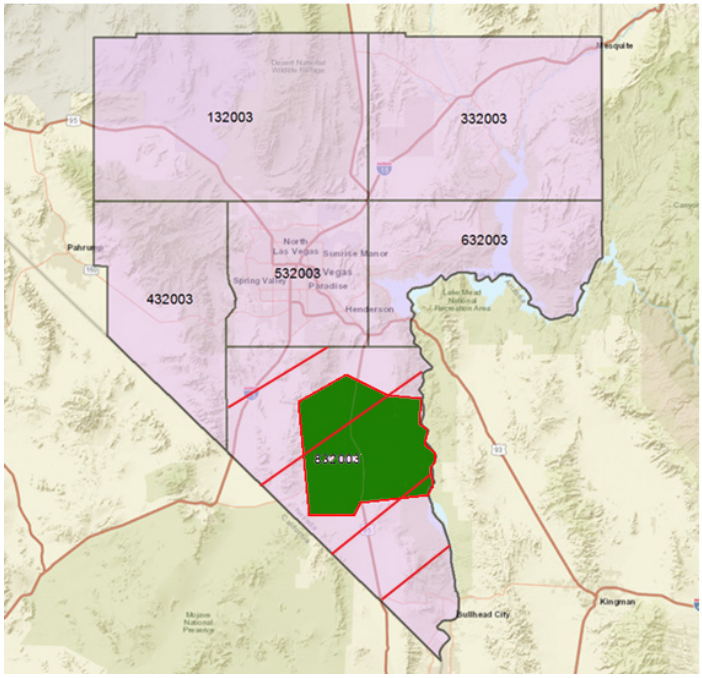
Example, Clark County with no partitioning. Polygon-based warning and hatched area associated with the former NWR SAME and EAS dissemination for the entire county.



Clark County Partitioning Plan effective June 1, 2021: six partitions



Example, Clark County. The identical polygon-based warning and the hatched area associated with NWR SAME and EAS using PCA.



Please note the following: PCA does **not** result in the direct dissemination of a forecaster-defined polygon (or a NWEM defined by a polygon) via NWR and EAS. However, the implementation of PCA will reduce our warning footprint on NWR and EAS from the entire county to one more closely representing the area defined by the polygon warning (or a NWEM defined by a polygon).

b. Purpose/Intended Use

NWS Instruction (NWSI) 10-1712, NWR SAME, Appendix A, provides the policy and technical details about county partitions.

47 Code of Federal Regulations (CFR) Part 11, Emergency Alert System, provides details on the employment of county subdivisions. The Federal Communications Commission (FCC)'s use of the word "subdivisions" is synonymous with the NWS's use of the word "partitions." Through an outreach and education campaign with partners, stakeholders and the broadcaster community, the use of the word "partitions" is gaining widespread acceptance.

When SAME-equipped NWR receivers are properly programmed for specific county partitions, NWR users will only receive automated notifications (e.g., SAME alarm tones) for the partitions they select. At the same time, if users do not choose to program receivers for specific partitions and maintain an all-county setting, they will continue to receive automated notification for all warnings issued for a county.

Similarly, when EAS encoder/decoder equipment is properly programmed for specific county partitions, broadcasters will only receive NWS warnings for the partitions they select.

By implementing SAME partial county location codes, some WFOs will be able to substantially reduce the dangerous problem of "listener fatigue" which NWS has been hearing about for years and as documented via social science research. Listener fatigue is an undesirable response when the public receives too many warning notifications for a given county. Listener fatigue is further exacerbated when the public ignores NWS warning messages because they apply to locations which are far away (e.g., "that warning does not affect me"). Further, issues mount when the public contacts local media outlets and broadcasters to complain about "too many EAS interruptions" to scheduled programming. In the most undesirable of possible scenarios, some broadcasters may decide to no longer convey any NWS warnings to EAS (including Tornado Warnings).

c. Audience

Primary audiences include the NWR user community and the general public receiving our warnings via EAS activation by broadcast television, radio and cable companies. Additionally, the incorporation of PCA into WMO and CAP v1.2 messages will provide more consistent downstream notifications about warnings sent to EAS using county partitions, particularly from third party applications and dissemination systems using NWS CAP messages.

d. Presentation formats and examples

Aural: For the NWR user community and when receivers are properly programmed, residents will only receive automated notifications via SAME for those county partitions of interest. For the Clark County warning example, listeners programming their NWR receiver with location code 932003 will hear their receivers activate with a warning tone and the message will state, "The National Weather Service in Las Vegas has issued a Flash Flood Warning for Southern Clark County."

Aural and Text: For the broadcast community which uses EAS encoder/decoder equipment, broadcasters will only receive notifications of NWS warnings for those county partitions of interest. For the Clark County warning example, broadcasters choosing to convey the warning to the public via EAS will include an audio message and text scroll stating, "The National Weather Service in Las Vegas has issued Flash Flood Warning for South Clark County." The use of the word "South" (instead of "Southern") is a limitation imposed by current FCC Rules and specifications (47CFR Part 11, Emergency Alert System, Subpart B, Equipment Requirements, EAS Protocol).

WMO messages: The use of county partitions will be appropriately identified below the && sign. Specifically, the Partition Tag Line will be located immediately after the LAT...LON line and before the TIME...MOT...LOC line or Impact Based Warning (IBW) Tags. Each element of the Partition Tag Line will use a six digit code corresponding to the six digit SAME location

code, following the PSSCCC nomenclature, where P=partition number, SS=state and CCC=county.

WMO messages are disseminated over numerous dissemination pathways, to include NOAAPort/Satellite Broadcast Network (SBN), NOAA Weather Wire Services (NWWS), Emergency Managers Weather Information Network (EMWIN) and the Application Programming Interface (API).

<u>WMO product example, Clark County. The partition tag beginning with the number 8 indicates this polygon-based warning is located in the southern partition.</u>

```
WGUS55 KVEF 040853
FFWVEF/ AZC015-NVC003-041145-
/O.NEW.KVEF.FF.W.0152.181004T0853Z-181004T1145Z/
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.00/
BULLETIN - EAS ACTIVATION REQUESTED
Flash Flood Warning
National Weather Service Las Vegas NV
153 AM PDT THU OCT 4 2018

The National Weather Service in Las Vegas has issued a

* Flash Flood Warning for...
  West central Mohave County in northwestern Arizona…
  Southern Clark County in southern Nevada...

* Until 445 AM PDT/445 AM MST/.

...

&&


LAT...LON 3616 11401 3567 11433 3567 11441 3540 11439
      3537 11483 3552 11485 3625 11450
PARTITION...832003

FLASH FLOOD...RADAR INDICATED
FLASH FLOOD DAMAGE THREAT...CONSIDERABLE

$$
```

<u>Another WMO product example. One county (Clark) partitioned and one county (Mohave) not partitioned.</u>

```
WGUS55 KVEF 040853
FFWVEF/ AZC015-NVC003-041145-
/O.NEW.KVEF.FF.W.0152.181004T0853Z-181004T1145Z/
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.00/
BULLETIN - EAS ACTIVATION REQUESTED
```

```
Flash Flood Warning
National Weather Service Las Vegas NV
153 AM PDT THU OCT 4 2018

The National Weather Service in Las Vegas has issued a

* Flash Flood Warning for...
  West central Mohave County in northwestern Arizona…
  Southern Clark County in southern Nevada...

* Until 445 AM PDT/445 AM MST/.

...

&&


LAT...LON 3616 11401 3567 11433 3567 11441 3540 11439
      3537 11483 3552 11485 3625 11450
PARTITION...832003

FLASH FLOOD...RADAR INDICATED
FLASH FLOOD DAMAGE THREAT...CONSIDERABLE

$$
```

Another WMO product example (notional). Non-Weather Emergency Message, issued for a county using partitioning.

```
WOUS43 KVEF 222256
CEMVEF
NVC003-230200-

BULLETIN - EAS ACTIVATION REQUESTED
Civil Emergency Message
Clark County Emergency Management
Relayed by National Weather Service Las Vegas NV
356 PM PDT Jul 22 2018

The following message is transmitted at the request of Clark County Emergency
Management.

Flash Flooding is resulting in evacuations in and near the following areas:

NELSON LANDING...NELSON...HIGHWAY 165...POWERLINE ROAD AND HIGHWAY 164 WEST OF
SEARCHLIGHT.

Follow instructions of local authorities. Further updates will follow.

&&

LAT...LON 3544 11510 3577 11514 3585 11497 3579 11482
3578 11470 3571 11471 3569 11468 3565 11469 3562 11465 3560 11465 3558 11467
```

```
3553 11466 3550 11468 3548 11492 3544 11494
PARTITION...532003

$$
```

CAP messages. CAP v1.2 messages will contain each PCA SAME code in the <area> block with a <geocode> valueName of "SAME" just as they would when full SAME codes are used. For example, if a warning impacts two county partitions, then the <area> block will contain two sets of SAME geocode values.

e. Feedback method

User feedback is always important in our effort to improve the quality and usefulness of NWS products and services.

Please submit any comments or questions to:
Mr. Timothy Schott
Meteorologist
National Weather Service Headquarters
Silver Spring, MD

Phone: (301) 427-9336
Email: Timothy.Schott@noaa.gov

Part II – Technical Description

For NWR: To receive the benefits of this enhanced dissemination capability, consumers must use a SAME-equipped NWR receiver. Please refer to NWSI 10-1710, NWR Dissemination, and NWSI 10-1712, NWR SAME, for technical details about SAME and the assignment of six digit location codes to fixed county partitions as follows:

Partition	Leading digit in SAME code
Northwest	1
North	2
Northeast	3
West	4
Central	5
East	6
Southwest	7
South	8
Southeast	9

The national NWR web pages (https://www.weather.gov/nwr) provide more information about SAME and a list of receiver manufacturers.

For EAS: For broadcaster's EAS encoder/decoder equipment, please refer to 47 CFR Part 11. The Part 11 Rules (47 CFR Part 11, 11.56, 3c for location code with PSSCCC format) state, "The use of county subdivisions will probably be rare and generally for oddly shaped or unusually large counties. Any subdivisions must be defined and agreed to by the local officials prior to use." "P" defines county subdivisions from 0 through 9.

Partial county shape files for those WFOs using PCA for select counties will be posted by NWS with Advanced Weather Interactive Processing System (AWIPS) Basemap Shapefiles at:
https://www.weather.gov/gis/AWIPSShapefiles

Access to NWS warnings in CAP is available at:
https://alerts.weather.gov
https://api.weather.gov

Details about NWS CAP v1.2 messages are at:
https://alerts.weather.gov/#technical-notes-v12

https://www.weather.gov/documentation/services-web-api

CAP v1.2 messages are available via the following push methods: NOAAPort and NWWS.

b. Availability

The list of WFOs and counties using PCA will be maintained at the aforementioned AWIPS Basemap Shapefiles page. The comments box associated with each county will document if PCA is used for: weather warnings, only; NWEMs, only; or both weather warnings and NWEMs.

The six digit location code for a county partition will be provided on the national NWR county pages and the NWS' telephone line at 1-888-NWR-SAME (1-888-697-7263), with additional descriptions on a non-zero, first digit of the location code.

The complete list of warnings disseminated by a given WFO using NWR SAME and EAS is determined by a WFO, State and Local Emergency Communications Committees, and broadcasters. A general summary and national guidance on the invocation of SAME for NWS warnings is provided in NWSI 10-1710, NWR Dissemination, Appendix G, Use of NWR SAME and 1050 Hz Warning Alarm Tone.